SAFETY PRECAUTIONS

SERVICE WARNING

Only qualified service technicians who are familiar with safety checks and guidelines should perform service work. Before replacing parts, disconnect power source to protect electrostatically sensitive parts. Do not attempt to modify any circuit unless so recommended by the manufacturer. When servicing the receiver, use an isolation transformer between the line cord and power receptacle.

SERVICING THE HIGH VOLTAGE AND CRT

Use EXTREME CAUTION when servicing the high voltage circuits. To discharge static high voltage, connect a 10K ohms resistor in series with a test lead between the receiver and CRT anode lead. DO NOT lift the CRT by the neck. Always wear shatterproof goggles when handling the CRT to protect eyes in case of implosion.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Be aware of the instructions and procedures covering X-ray radiation. In solid-state receivers and monitors, the CRT is the only potential source of X-rays. Keep an accurate high voltage meter available at all times. Check meter calibration periodically. Whenever servicing a receiver, check the high voltage at various brightness levels to be sure it is regulating properly. Keep high voltage at rated value, NO HIGHER. Excessive high voltage may cause X-ray radiation or failure of associated components. DO NOT depend on protection circuits to keep voltage at rated value. When troubleshooting a receiver with excessive high voltage, avoid close contact with the CRT. DO NOT operate the receiver longer than necessary. To locate the cause of excessive high voltage, use a variable AC transformer to regulate voltage. In present receivers, many electrical and mechanical components have safety related characteristics which are not detectable by visual inspection. Such components are identified by a # on both the schematic and the parts list. For SAFETY, use only equivalent replacement parts when replacing these components.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning receiver to customer. Check repaired area for poorly soldered connections, and check entire circuit board for solder splashes. Check inner board wiring for pinched wires or wires contacting any high wattage resistors. Check that all control knobs, shields, covers, grounds, and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.

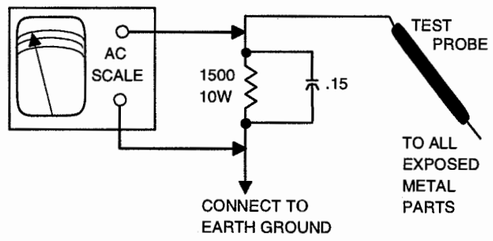
SAFETY CHECKS -- FIRE AND SHOCK HAZARD

Cold Leakage Checks for Receivers with Isolated Ground

Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with a return path should measure between 1M ohms and 5.2M ohms. Parts without a return path must measure infinity.

Hot Leakage Current Check

Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer. Use a 1500 ohms, 10W resistor in parallel with a .15µF capacitor to connect between any exposed metal parts on the receiver and a good earth ground. (See figure below.) Use an AC voltmeter with at least 5000 ohms per volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point. Voltage measurements should not exceed .75VAC, 500µA. Any value exceeding this limit constitutes a potential shock hazard and must be corrected. If the AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.



HIGH VOLTAGE SHUTDOWN TEST

Apply 120VAC. Connect a jumper wire to XRP1 and XRP2. The set should go into shutdown, losing picture and sound. If set does not go into shutdown the shutdown circuit requires repair. To resume normal operation, remove jumper wire.

The listing of any available replacement part herein in no case constitutes a recommendation, warranty, or guarantee by Howard W. Sams & Company as to the quality and suitability of such replacement part. The numbers of the listed parts have been compiled from information furnished to Howard W. Sams & Company by the manufacturers of the specific type of replacement part listed.

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3870

SET 3870

MODEL E13208GYF25 (CHASSIS TX826TB)

RCA

PHOTOFACT® Technical Service Data

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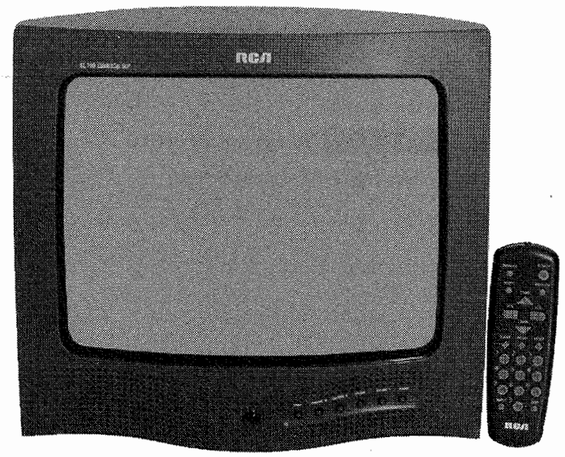
For Supplier Address, See PHOTOFACT Annual Index

RCA

Model E13208GYF25 (Chassis TX826TB)



Essential coverage for servicing a television receiver...

- **Schematics**
- **Component locations**
- **Parts list**

Coverage includes these additional models and chassis:

MODELS	CHASSIS
E13208GYC25	TX826TB
E13209BCF25	TX826TB

HOWARD W. SAMS & COMPANY

SEPTEMBER 1997 SET 3870

3870

PARTS LIST

Important Parts Information

- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a # to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

800-428-7267

Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- Custom Components Corporation (Chek-A-Color)
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- PTS Electronics Corporation (PTS)
- Sencore, Inc.
- Terrell & Nobis (TNI Electronics)
- Thomson Consumer Electronics, Inc. (SK, TCE)

Created with pride by the employees of Howard W. Sams & Company.

J. Barker, N. Beck, A. Bonner, B. Buchanan, T. Clensy, G. Farrell, B. Fink, M. Herkless, J. Kocha, F. Malek, B. Medaris, R. Raus, B. Skinner

SEMICONDUCTORS

(Select the replacement that gives the best results.)

	Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
	DC01	1N4148	164717	NTE519	ECG519	SK3100
	DF04	1N4001	198597	NTE116	ECG116	SK3313
	DK31, 34, 38	1N4148	164717	NTE519	ECG519	SK3100
	DM03	-	215489	-	-	-
	DP02	-	220637	-	-	-
	DP04, 05	1N4148	164717	NTE519	ECG519	SK3100
#	**DP06**	-	223083	-	-	-
	DP10	-	225441	-	-	-
	DP11	RGP10G	-	NTE552	ECG552	SK9000
		1S1834	210226	NTE552	ECG552	SK9000
		BA157	198590	NTE558	ECG558	SK3998
		BYD73G	210786	-	-	-
	DP12	BA157	198590	NTE558	ECG558	SK3998
#	**DP13**	-	198596	-	-	-
	DP14	1S1834	210226	NTE552	ECG552	SK9000
		BA158	198598	NTE558	ECG558	SK3998
	DP15, 16	1N4001	198597	NTE116	ECG116	SK3313
	DP18	1S1834	210226	NTE552	ECG552	SK9000
		BA158	198598	NTE558	ECG558	SK3998
	DP19	BA158	198598	NTE558	ECG558	SK3998
		-	220636	-	-	-
	DP20	1S1834	210226	NTE552	ECG552	SK9000
		BA158	198598	NTE558	ECG558	SK3998
	DP21	1N4001	198597	NTE116	ECG116	SK3313
#	**DP26** Thru					
#	**DP29**	1N4006	209919	NTE125	ECG125	SK3032A
	DP35, 37	1N4148	164717	NTE519	ECG519	SK3100
	DP46, 54	1N4148	164717	NTE519	ECG519	SK3100
	DP67	-	220637	-	-	-
	DP75	BA157	198590	NTE558	ECG558	SK3998
	DP76, 77, 78	1N4148	164717	NTE519	ECG519	SK3100
	DR02	1N4148	164717	NTE519	ECG519	SK3100
	DR04	-	220638	-	-	-
	DR05	-	215488	-	-	-
	DR06, 07	1N4148	164717	NTE519	ECG519	SK3100
	DT01, 02	1N4148	164717	NTE519	ECG519	SK3100
	DV52	-	220638	-	-	-
#	**DX01**	1N4148	164717	NTE519	ECG519	SK3100
#	**DX02**	-	159429	NTE5019T1	ECG5019T1	SK9970
		-	198774	NTE5019T1	ECG5019T1	SK9970
#	**DX03**	1N4148	164717	NTE519	ECG519	SK3100
	IF01	LA7830	188086	NTE1773	ECG1773	SK9752
	IL01	M52303ASP	210543	-	-	-
	IR01	ST6497B1/BHS	225630	-	-	-
		-	227722	-	-	-
	IT01	MC144143P2	220114	-	-	-
	TC01	BC548B	198743	NTE123AP*	ECG123AP*	SK3854*
	TF01	BC548C	198746	NTE199*	ECG199*	SK3245*
	TJ04	BC558B	230764	NTE159*	ECG159*	SK3466*
	TM02	BF370R	206017	-	-	-
	TP01	BC548C	198746	NTE199*	ECG199*	SK3245*
	TP02	BC558C	198747	NTE159*	ECG159*	SK3466*
#	**TP03**	BC548C	198746	NTE199*	ECG199*	SK3245*
	TP04	BC558C	198747	NTE159*	ECG159*	SK3466*
	TP05, 06	BC548C	198746	NTE199*	ECG199*	SK3245*
	TP09	BC337-16	216099	NTE123AP*	ECG123AP*	SK3854*
	TP10	S2000A3	198794	-	-	-
		S2000AF	227518	-	ECG2354%	-

 # For SAFETY use only equivalent replacement part.
* Lead configuration may vary from original.
% Use Insulating hardware supplied with replacement.

PARTS LIST continued

SEMICONDUCTORS continued

(Select the replacement that gives the best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
TP11	BC558C	198747	NTE159*	ECG159*	SK3466*
TP12	BC548C	198746	NTE199*	ECG199*	SK3245*
TP13	BD434	220673	NTE153*	ECG153*	SK3274*
TP14	BC337-16	216099	NTE123AP*	ECG123AP*	SK3854*
TP15	-	198752	-	-	-
TR03	BC548B	198743	NTE123AP*	ECG123AP*	SK3854*
TR04	BC548C	198746	NTE199*	ECG199*	SK3245*
TR05	BC548C	198746	NTE199*	ECG199*	SK3245*
TR07	BC337-16	216099	NTE123AP*	ECG123AP*	SK3854*
TR08	BC548C	198746	NTE199*	ECG199*	SK3245*
TR10, 12	BC548B	198743	NTE123AP*	ECG123AP*	SK3854*
TS02	BC548A	220674	NTE199*	ECG199*	SK3245*
TS03	BC337-16	216099	NTE123AP*	ECG123AP*	SK3854*
TS04	BC327-25	220675	NTE298*	ECG298*	SK3450*
TS05	BC548A	220674	NTE199*	ECG199*	SK3245*
TV04	BC558B	230764	NTE159*	ECG159*	SK3466*
TV05, 50	BC558C	198747	NTE159*	ECG159*	SK3466*
TV101, 02, 03	BF392	198763	NTE287	ECG287	SK3433

* Lead configuration may vary from original.

CAPACITORS & ELECTROLYTICS

	Item No.	Rating	Mfr. Part No.
	CC02, 03, 04	100pF 5% 50V N750	198579
	CC05	33pF 5% 50V NPO	210153
#	**CF01**	470µF 20% 25V	220623
	CM16	8.2pF 10% 50V NPO	202047
	CM18	68pF 5% 50V N750	198554
	CM19	47pF 5% 50V N750	198555
#	**CP06**	.068 20% 250V	220627
#	**CP16**	.0068 10% 400V	225439
#	**CP17**	100µF 20% 160V	168725
#	**CP18**	.0066 1.6kV	-
#	**CP20**	1000µF 20% 16V	185862
#	**CP22**	22µF 20% 100V	210156
#	**CP23**	1000µF 20% 25V	232348
#	**CP26, 27**	.0015 10% 1kV	198565
#	**CP31**	330µF 20% 200V	182286
#	**CP40**	.36 5% 250V	198567
#	**CP41**	1000µF 20% 25V	232348
#	**CP53, 54**	680pF +50% -20% 2kV	225440
#	**CP55**	.001 +50% -20% 1kV	198570
	CS02	390pF 5% 50V N750	220630
#	**CS06**	.1 10% 63V	220631
	CV36	27pF 5% 50V NPO	220634
#	**CV104**	.001 +50% -20% 2kV	198806
#	**CX02**	.1 10% 63V	200141

 # For SAFETY use only equivalent replacement part.

CONTROLS & RESISTORS

	Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
	PF01	500 Vertical Size	198627	-
	PM01	10K AGC	198628	-
#	**PP01**	1000 B+	198629	-
	PP02	220 Centering	225631	-
	PV101	2500 Red Cutoff	216051	-
	PV102	2500 Green Cutoff	216051	-
	PV103	2500 Blue Cutoff	216051	-
	PV104	250 Red Drive	216052	-
	PV105	250 Green Drive	216052	-
#	**RF01**	2.7 5% 1/2W	198648	HW2D7
	RF05	68.1K 1% .16W	198790	-
#	**RF15**	22K 5% .16W	198714	-
#	**RP06**	220 5% 1/4W	232521	QW122
#	**RP07**	6810 1% .16W	220649	-
#	**RP08**	110K 1% .4W	220650	-
	RP12	82.5K 1% .16W	220651	-
#	**RP18**	8200 5% 1/4W	210181	QW282
#	**RP19**	9100 5% 1/4W	829291	QW291
#	**RP23**	5.6 5% 2W	220652	2W5D6
#	**RP24**	1.8M 10% 1/2W	220333	HW518
#	**RP25**	8.4 Cold PTC	198688	-
#	**RP28**	2.7 10% 5W Wirewound	220653	5W2D7
#	**RP32**	1000 10% 1/2W	206386	HW210
#	**RP34**	33 5% 1W	198695	1W033
#	**RP39**	220 5% .43W	220656	-
#	**RP53**	.39 5% 1/4W	198701	-
#	**RP55**	10 5% .35W	210185	-
#	**RP56**	15K 5% 1/4W	198703	QW315
#	**RP59**	100 5% .16W	198660	-
#	**RP61**	3300 5% .16W	198638	-
#	**RP68**	.68 5% .4W	216049	-
	RR77	680 2% .16W	220665	-
#	**RS07**	270 5% 1/4W	220648	QW127
	RV54	115K 1% 1/4W	210194	-
#	**RV100**	2200 5% 1/2W	176632	HW222
#	**RV104, 05, 06**	12K 5% 2W	183193	2W312
#	**RV109**	120 5% 1/4W	210196	QW112
#	**RV127**	1 Fusible	220672	-
#	**RX02**	10K 1% 1/4W	198739	-
#	**RX03**	9090 1% 1/2W	198740	-
#	**RX04**	2200 5% .16W	198698	-
#	**RX05**	100 5% .16W	198660	-
#	**RY01**	680 5% 1/2W	175364	HW168

 # For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS

	Item No.	Function/Rating		Mfr. Part No.
#	**DY1** (2)	Yoke	Horiz 2.5mH Vert 24mH	204903
#	**DY1** (3)	Yoke		198805
	JR37	100µH		220641
	LM02	Sound Detect		198613
	LM03	Video Detect		206385
	LM04	.82µH		230985
	LM07	AFT		210787
	LM08	47µH		198617
#	**LP01**	Line Filter		190507
	LP02	6µH		198619
#	**LP03**	Switch Mode		220642
#	**LP04** (1)	Horizontal Output		198622
#	**LP05**	90µH		205416
	LP06	50µH		230990
	LP11	Ferrite Bead		224167
	LP12	Ferrite Bead		224167
	LP13	6µH		198619
#	**LP99**	Degaussing		198807
	LR01	35µH		205430
	LS02	47µH		198617
	LT01	Ferrite Bead		220643
	LV01	1.5µH		198783
	LV02	12µH		230994
	LV103	150µH		210247

 # For SAFETY use only equivalent replacement part.
(1) Focus and screen controls are part of LP04.
(2) Used with CRT 370KSB22.
(3) Used with CRT A34JLN60X.

PARTS LIST continued

MISCELLANEOUS

	Item No.	Description	Mfr. Part No.	Notes
#	**FP01**	Fuse	198605	2.5Amp, 250V
	IK02	IR Preamp	225629	-
#	**P01**	Line Cord	198540	AC, Polarized
	QC01	Filter	198630	3.58MHz
		Filter	233444	3.58MHz
	QL01	Crystal	198633	43.5MHz
	QM01	Filter	210250	SAW
	QM02	Filter	210239	4.5MHz
	QR01	Crystal	210549	8MHz
	QV01	Filter	205431	4.5MHz
	SP1	Speaker	-	1 3/4" x 2 3/4", 16 Ohm, 3W
		Speaker	198787	16 Ohm, 2W
		Speaker	232316	16 Ohm, 4W
	SW01	Switch	215500	Power
	SW02	Switch	215500	Volume Up
	SW03	Switch	215500	Volume Down
	SW04	Switch	215500	Channel Up
	SW05	Switch	215500	Channel Down
	SW06	Switch	215500	Menu
#	**V101**	CRT	370KSB22	-
#	**V101**	CRT	A34JLN60X	-
	VV01	Delay Line	198753	-
		Adapter	193983	Antenna 75 To 300 Ohms
		Antenna	220689	UHF/VHF
		Magnet	196283	Purity/Convergence
		PC Board (1)	223147	CRT
#		Socket	224146	CRT
		Transmitter	226551	Remote, CRK10A
		Tuner (1)(2)	223080	UHF/VHF, MTP-M-4006
		Wedge	149903	Yoke Positioning (3 Used)

 # For SAFETY use only equivalent replacement part.
(1) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.
(2) Contact TNI Electronics for replacement; order by part number on tuner.

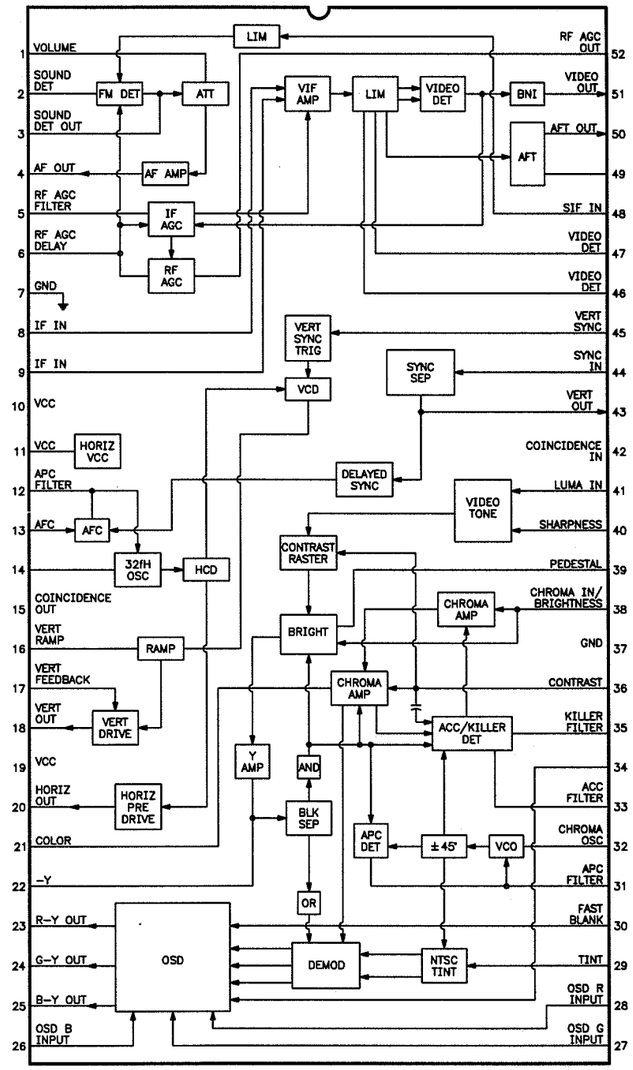
CABINET PARTS

	Item	Mfr. Part No.
	Model E13208GYF25	
#	Back Cover	BK1965
	Button Cluster	233358
#	Cabinet Front	MK1964
	Window IR	233357
	Model E13208GYC25	
#	Back Cover	BK1965
	Button Cluster	233358
#	Cabinet Front	MK1964
	Window IR	233357
	Model E13209BCF25	
#	Back Cover	BK1965
	Button Cluster	233744
#	Cabinet Front	MK1990
	Window IR	233357
	Remote Transmitter	
	Battery Door	226900

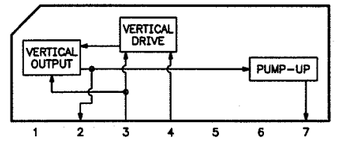
 # For SAFETY use only equivalent replacement part.

IC FUNCTIONS

IL01
M52303ASP



IF01
LA7830



RCA

MODEL E13208GYF25 (CHASSIS TX826TB)

TELEVISION SCHEMATIC

A

B

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

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SEE IR01 PIN 9 PAGE 2E

RM19 100K

RM16 120K

RM20 220K

CM23 .068 63V

9A 9.0V

LM07

RM17 2700

CM28 .022

QM02 4.5MHz

FILTER

PART OF IL01 M52303ASP TV PROCESSOR

SIF 2.4V

SOUND DET 3.5V

SOUND DET OUT 4.3V

AF OUT VOLUME 4.0V

RS03 1500

CS01 10µF

RS05 1800

RS04 10K

CS03 10µF

RS02 1500

CM18 68pF N750

LM02

RM41 4700

SEE IR01 PIN 5 PAGE 2E

RM40 12K

CM34 10µF

CM05 .0027

CM04 .01

TAKEN WITH BAR SWEEP GENERATOR

2.1V 10µs

2.5V 10µs

TS02 BC548A AUDIO AMP

CS02 390pF N750

.6V

6.2V

TS05 BC548A PREDRIVER

RS10 680

RS08 470

6.9V

TS03 BC337-16 AUDIO OUT

7.4V

6.8V

RS11 1

6

13.7V

RS07 270

CS05 100µF

CS07 470µF

BS01

RS06 390

RS09 4700

CS06 1µF 63V

RS14 470

SP1 16Z

BS01

RS12 1

RS13 1

TS04 BC327-25 AUDIO OUT

TAKEN WITH CHROMA BAR SWEEP GENERATOR

1.0V 10µs

SEE TUNER IF PIN 3 PAGE 3B

CM19 47pF N750

TM02 BF370R IF PREAMP

2.6V

9.2V

1.9V

RM09 1500

RM11 10

RM10 100

LM04

RM06 3300

CM20 .022

RM12 68

RM03 100

8 12.0V

CM25 .022

RM15 10K

QM01 SAW FILTER

IF IN 2.3V

RF AGC OUT 5.1V

PART OF IL01 M52303ASP TV PROCESSOR

RF AGC FILTER 4.7V

RF AGC DELAY 2.7V

VCC

GND

VIDEO DET 4.8V

VIDEO DET 4.8V

4.8V AFT OUT

5.4V AFT IN

VIDEO OUT 3.4V

LV01

RV40 750

RV26 270

LV02 1.4

QV01 4.5MHz FILTER

RF AGC RANGE 4.4V TO 8.3V

9A 9.0V

RM04 8200

PM01 AGC 10K

CM07 .22 63V

CM02 .01

CM16 8.2pF NPO

LM03

TV04 BC558B VIDEO BUFFER

3.6V

4.0V

RV28 120

RV55 180

9A 9.0V

VV01 DELAY LINE

CV15 .01

RV34 560

RV50 22K

SEE IR01 PIN 4 PAGE 2E

RR10 2400

RR55 15K

RR11 1500

RR12 15K

CR32 2.2µF

9A 9.0V

SEE IR01 PIN 2 PAGE 2E

RR04 3900

RR05 3900

RR06 5100

9A 9.0V

SEE TUNER AGC PIN 1 PAGE 3A

CM24 .022

JM05 6800

CM01 2.2µF

RM45 47K

.9V 10µs

CM26 .01

CM17 .01

1.7V 5ms

3.8V 10µs

1.7V 5ms

2.5V 5ms

30V 5ms

SEE TJ04 BASE PAGE 2E

CV06 1µF

RV31 180K

RV30 180

NC 15

NC 42

0V COINCIDENCE IN

.01V COINCIDENCE OUT

PART OF IL01 TV PROCESSOR M52303ASP

SYNC IN 7.4V

AFC 2.9V

SYNC OUT 7.9V

VERT SYNC 8.9V

VCC 8.9V

APC FILTER 6.2V

HORIZ OUT 1.5V

VERT FEEDBACK 3.5V

VERT OUT .9V

VERT RAMP 4.2V

1.6V 10µs

CV07 .0015

DC01 1N4148

BC548B TC01 SYNC KILL SWITCH

SEE IR01 PIN 36 PAGE 2E

RC22 2200

.7V

.02V

RC23 10K

CC13 .001

RC24 4700

9A 9.0V

CV08 .0047

RV36 1500

9A 9.0V

RV37 12K

CV14 .0068 63V

CV13 .01

CV12 .01 63V

RV29 220K

9A 9.0V

RP98 220K

CP35 .033 63V

CP34 .01

PP02 CENTERING 220

RP43 18K

6.8V 10µs

RP06 220

7 12.0V

CM12 .022

RM05 6800

CM10 1µF

CM21 22µF

CM11 .01

RP67 180

CP65 680pF

RP11 1000

CP04 .0033

RP10 3300

DP05 1N4148

QL01 43.5MHz

JV17 100

RF09 2200

CF14 .001

VERT DRIVE .87V

IF01 LA7830 VERT OUTPUT

PUMP UP 1.2V

VCC 22.6V

VCC

OSC STOP .67V

VERT OUT 10.9V

CF09 100µF

DF04 1N4001

CF06 47pF

CF07 .001

10 22.0V

50V 5ms

RF10 47K

RF07 120K

CF05 .047 63V

SEE TR12 BASE PAGE 2E

RF05 68.1K 1%

CF08 1µF

RF04 33K

CF02 4.7µF

2.7V 10µs

DY1 YOKE

BP04

BF01

RY01 680

3.5

15.0

BP04

RP32 1000

LP05

CP40 36 250V

RF12 1000

CF01 470µF

PF01 VERT SIZE 500

RF01 2.7

RF11 820

SEE TR05 COLLECTOR PAGE 2F

XRP2

XRP1

DX01 1N4148

DX02 10.0V

RX03 9090 1%

RX04 2200

RX05 100

DX03 1N4148

RF15 22K

RX02 10K 1%

RF20 180K

CX02 .1 63V

CF13 47µF

TF01 BC548C VERT SHUTDOWN

-.5V

0V

RF13 82

CR52 470pF

RR73 22K 1%

-2.3V

TR08 BC548C HORIZ PULSE

3.5V

RR95 200K

6 13.7V

RR72 3300

3 5.0V

SEE IR01 PIN 26 PAGE 2E

SEE IT01 PIN 8 PAGE 2E

TP01 BC548C HORIZ OSC

.2V

2.3V

TP02 BC558C HORIZ OSC

LP12

1.9V

RP65 180

CP03 .0018 63V

RP12 82.5K 1%

TP04 BC558C RAMP GENERATOR

1.9V

2.4V

CP48 .01

RP13 1000 (10K)

DP37 1N4148

TP05 BC548C COMPARATOR

.4V

.3V

RP14 4700

RP16 10K

11 8.5V

TP06 BC548C AMP

2.0V

CP66 470pF

500V

RP76 1200

TP09 BC337-16 AMP

6.1V

RP23 5.6 2W

DP16 1N4001

DP15 1N4001

DP21 1N4001

CP08 100µF

RP09 220

DP04 1N4148

RP26 68K

TP03 BC548C ERROR AMP

6.4V

8.1V

5.8V

RP08 110K 1%

RP59 100

PP01 B+ 1000

RP07 6810 1%

5 104V

RP05 33K

RP03 3300

CP01 100µF

RP02 270

RP15 18K

DP46 1N4148

RP27 2200

CP13 .001

DP06 4.7V

10 22.0V

6.4V 10µs

SEE TP11 COLLECTOR PAGE 2F

RP87 4.7 2W

6.1V 10µs

1.8V

TP13 BD434 AMP

11 8.5V

CP67 680pF

A1

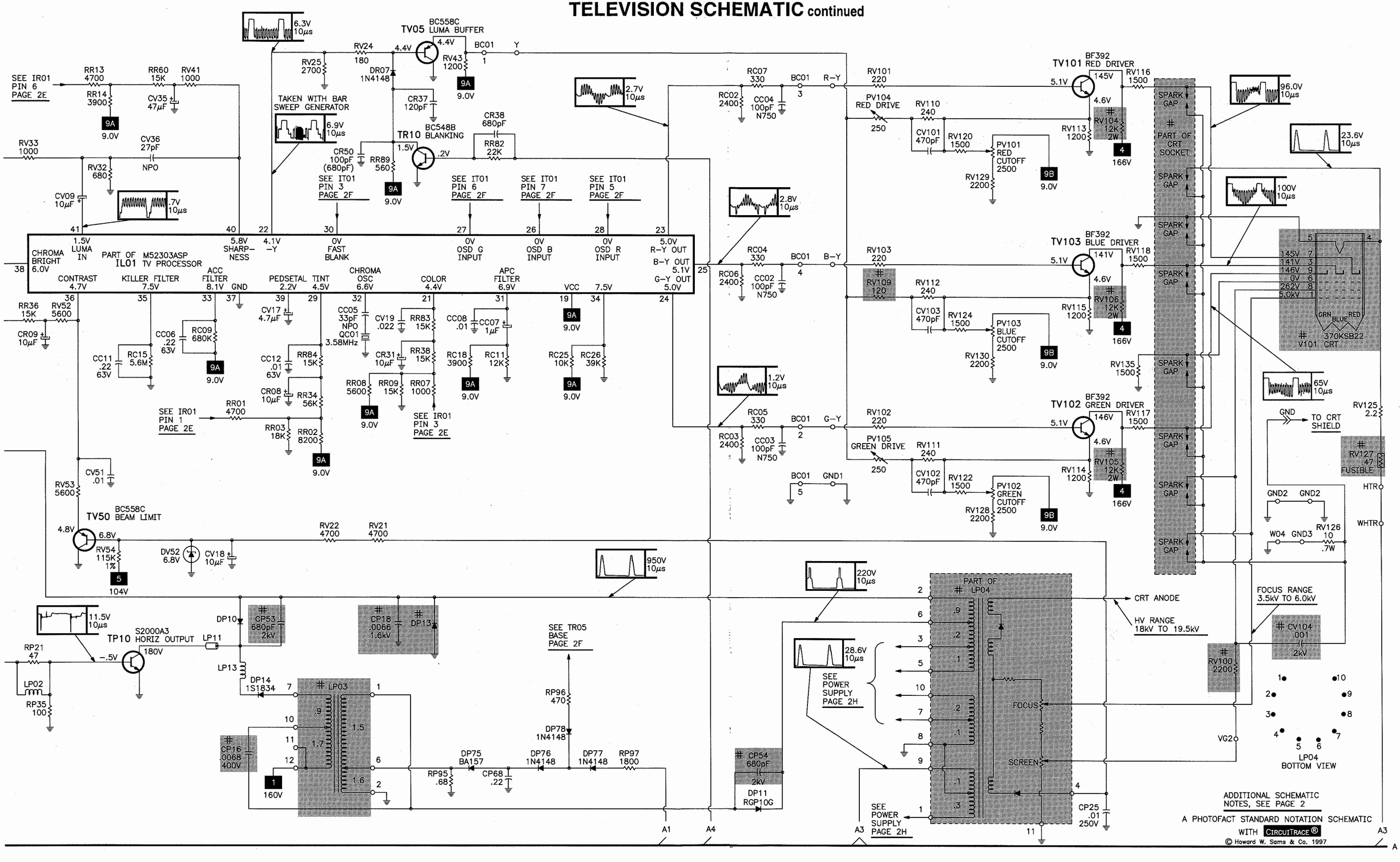
A2

A3

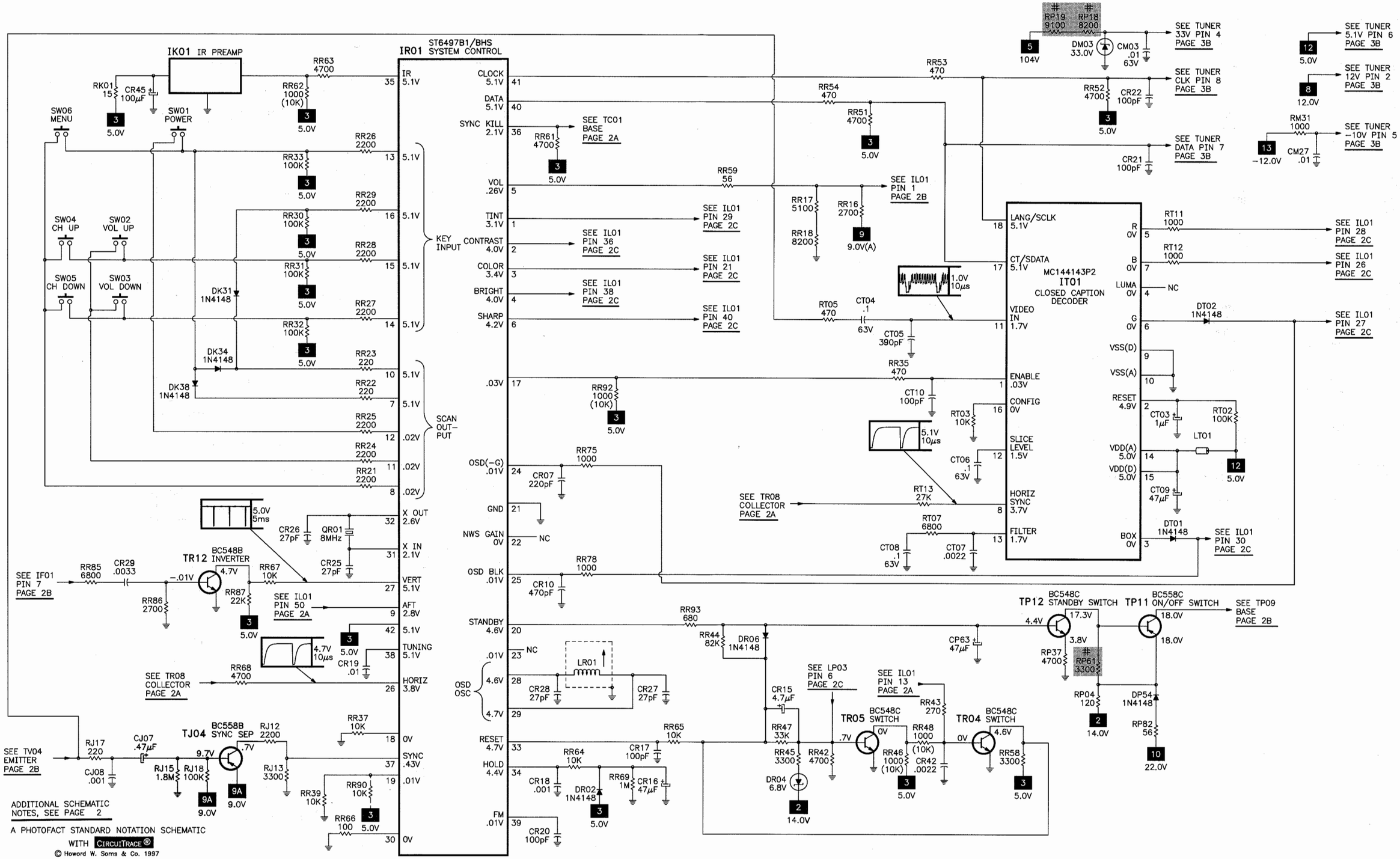
A4

A

TELEVISION SCHEMATIC continued



SYSTEM CONTROL SCHEMATIC



E

F

SCHEMATIC NOTES

#	For SAFETY use only equivalent replacement part, see parts list.
-x-	Circuitry not used in some versions.
---	Circuitry used in some versions.
⏚	Ground
⏚	Chassis ground
⏚	Common tie point
△	Taken from common tie point
3	Schematic CIRCUITRACE ® Voltage source tie point.
A	Cabling: Heavy lines reduce use of multiple lines.

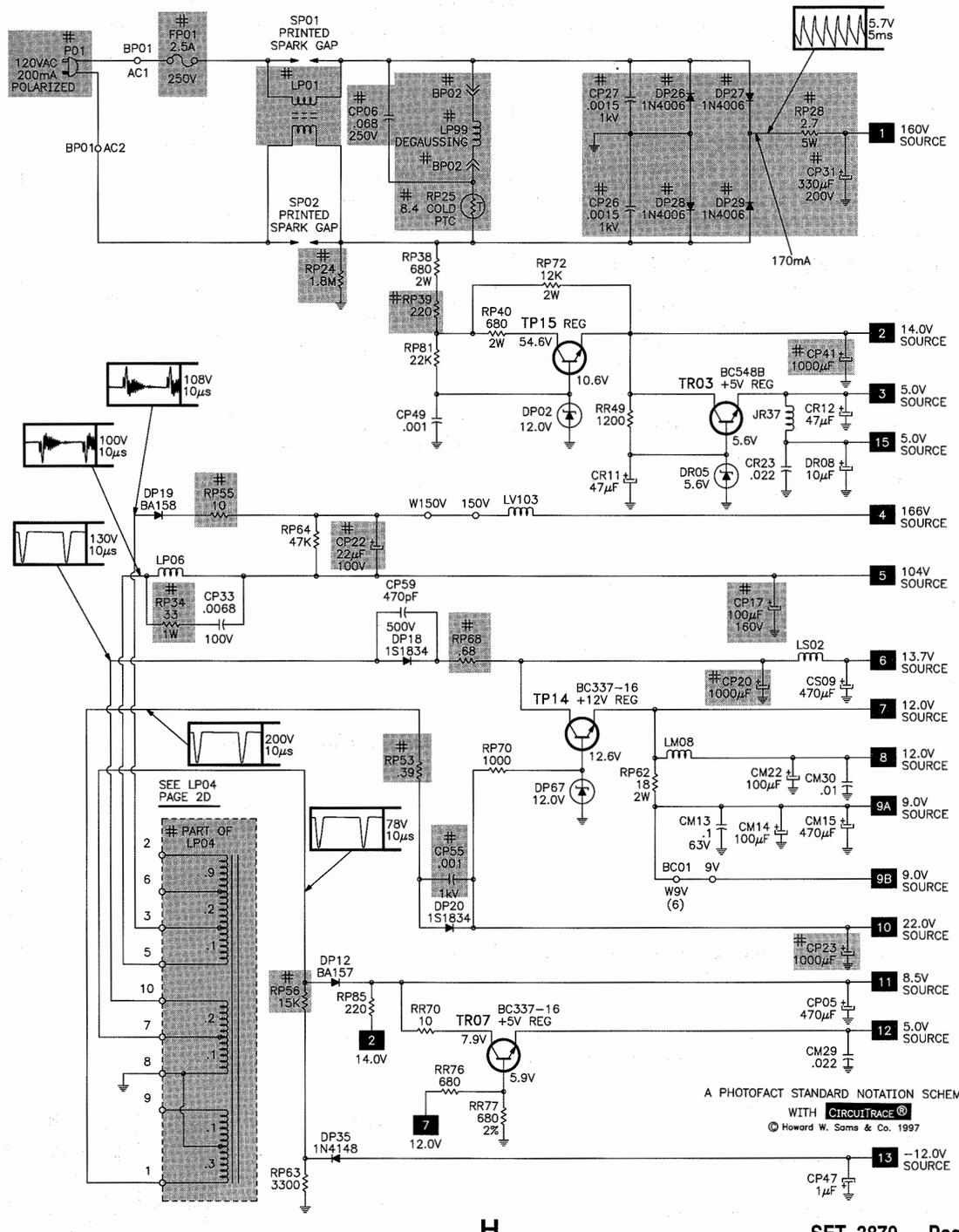
Waveforms and voltages are taken from ground, unless noted otherwise.
Waveforms taken with triggered scope and colorbar signal. Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.
Supply voltages maintained as seen at input.
Voltages measured with digital meter and a 1000µV RF signal, with colorbar pattern, applied to antenna terminal.
Controls adjusted for normal operation.
Capacitors are 50 volts or less, 5% or greater unless noted.
Electrolytic capacitors are 50 volts or less, 20% or greater unless noted.
Resistors are 1/2W or less, 5% or greater unless noted.
Value in ( ) used in some versions.
Measurements with switching as shown, unless noted.
Rated voltage shown on zener diodes.

TEST EQUIPMENT

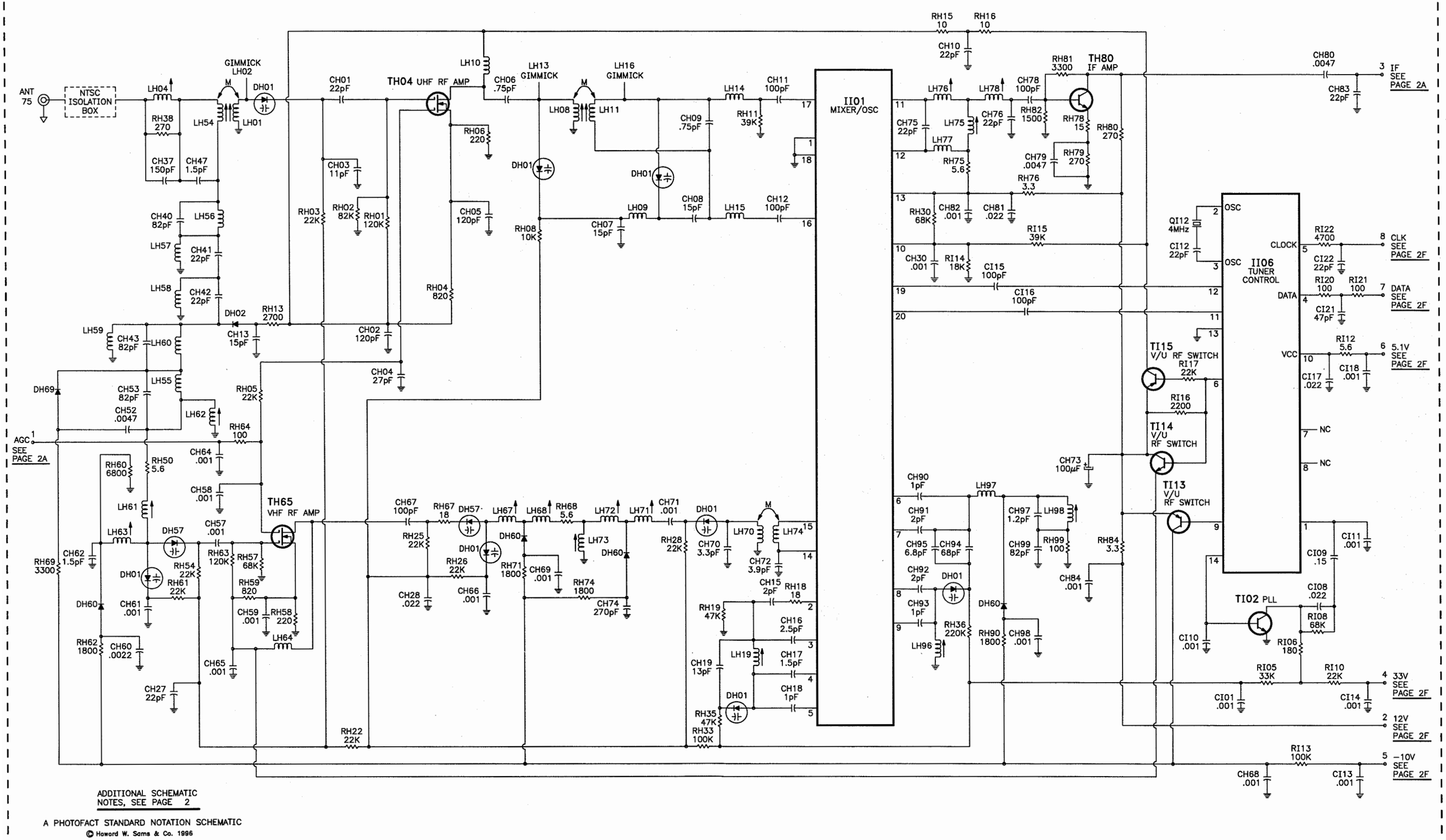
Test equipment listed by participating manufacturer illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

Equipment	Sencore No.	Equipment	Sencore No.
Oscilloscope	SC3100	Isolation Transformer	PR57
Generators		Capacitance Analyzer	LC101, LC102
RGB	CM2000	CRT Analyzer	CR70
Multiburst Signal	VG91	AC Leakage Tester	PR57
Color Bar	VG91	Inductance Analyzer	LC101, LC102
TV Stereo	VG91	Flyback Yoke Tester	TVA92
Digital VOM	SC3100	TV Stereo Power Monitor	SR68, PA81
Frequency Meter	SC3100	Field Strength Meter	SL750
Hi-Voltage Probe	HP200	Transistor Tester	TF46
Accessory Probes	TP212	Video Analyzer	VG91, TVA92

POWER SUPPLY SCHEMATIC



TUNER SCHEMATIC



ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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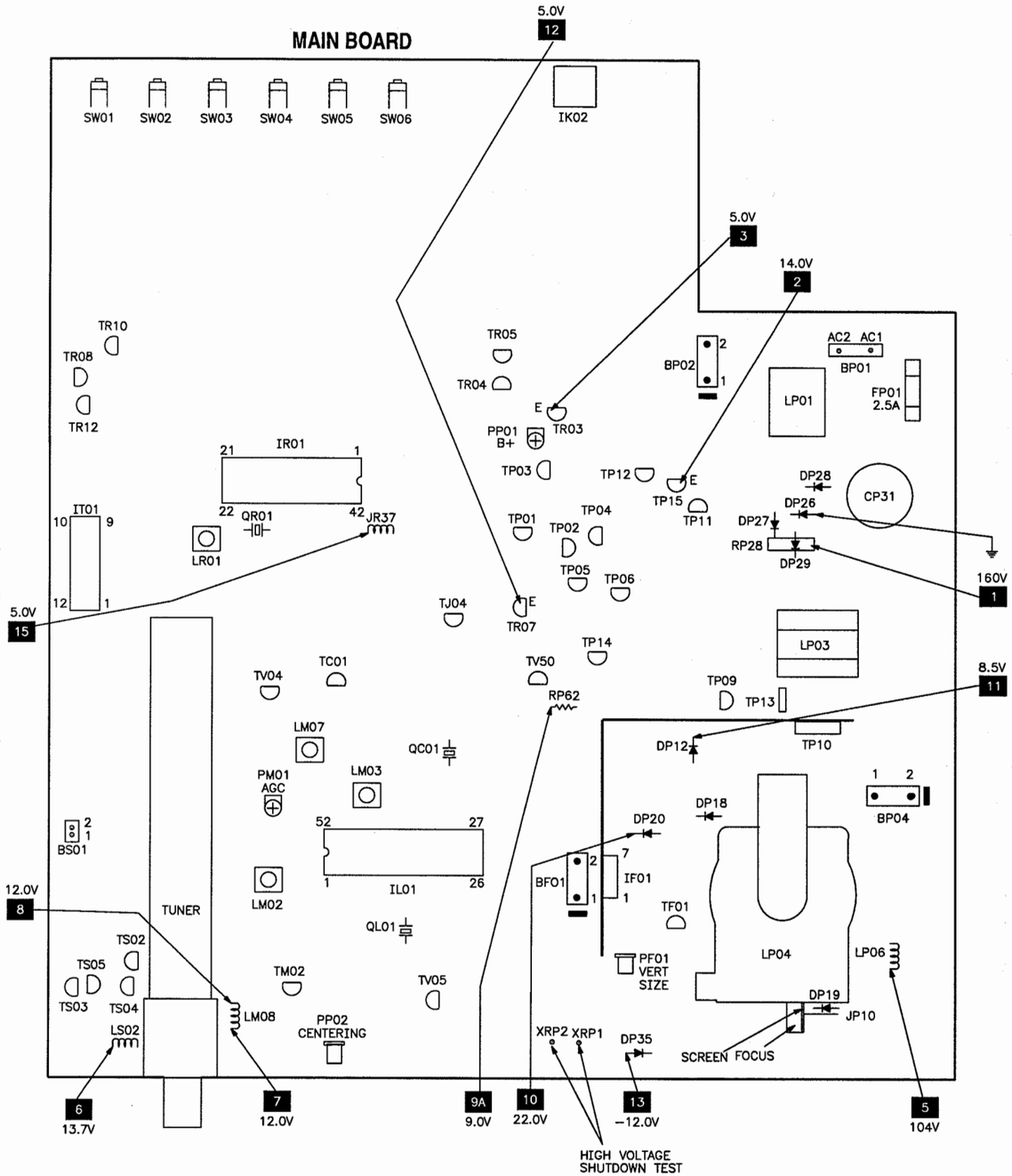
PLACEMENT CHART



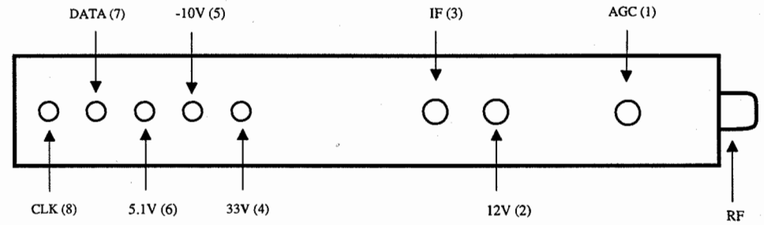
TUNER INFORMATION

TUNER VOLTAGE CHART

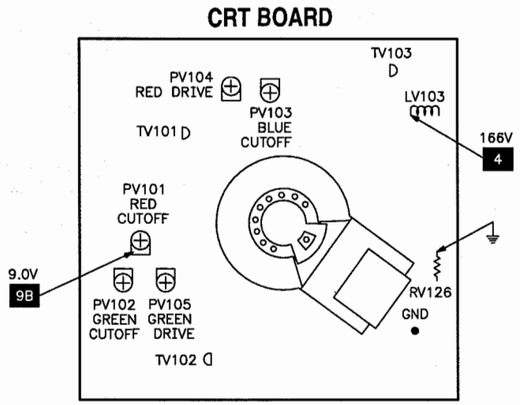
Pin	VHF Low Band	VHF High Band	UHF Band
AGC (1)	4.0V	4.0V	4.4V
12V (2)	12.0V	12.0V	12.0V
IF (3)	0V	0V	0V
33V (4)	33.2V	33.2V	33.2V
-10V (5)	-11.3V	-5.6V	-11.3V
5.1V (6)	5.0V	5.0V	5.0V
DATA (7)	5.0V	5.0V	5.0V
CLK (8)	5.0V	5.0V	5.0V

NOTE: VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.

TUNER TERMINAL GUIDE

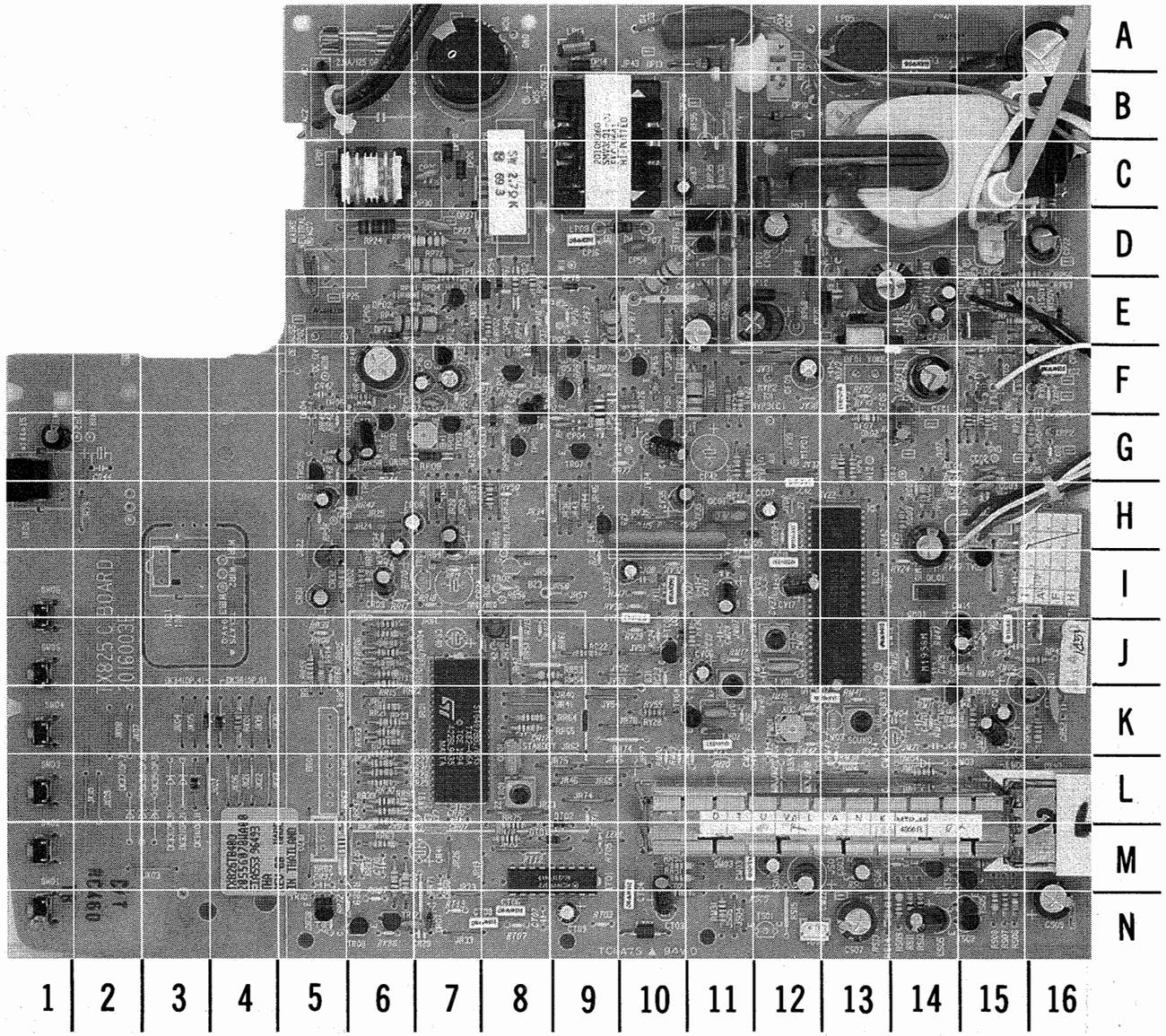


CRT BOARD



SET 3870 Page 3

MAIN BOARD - TOP VIEW

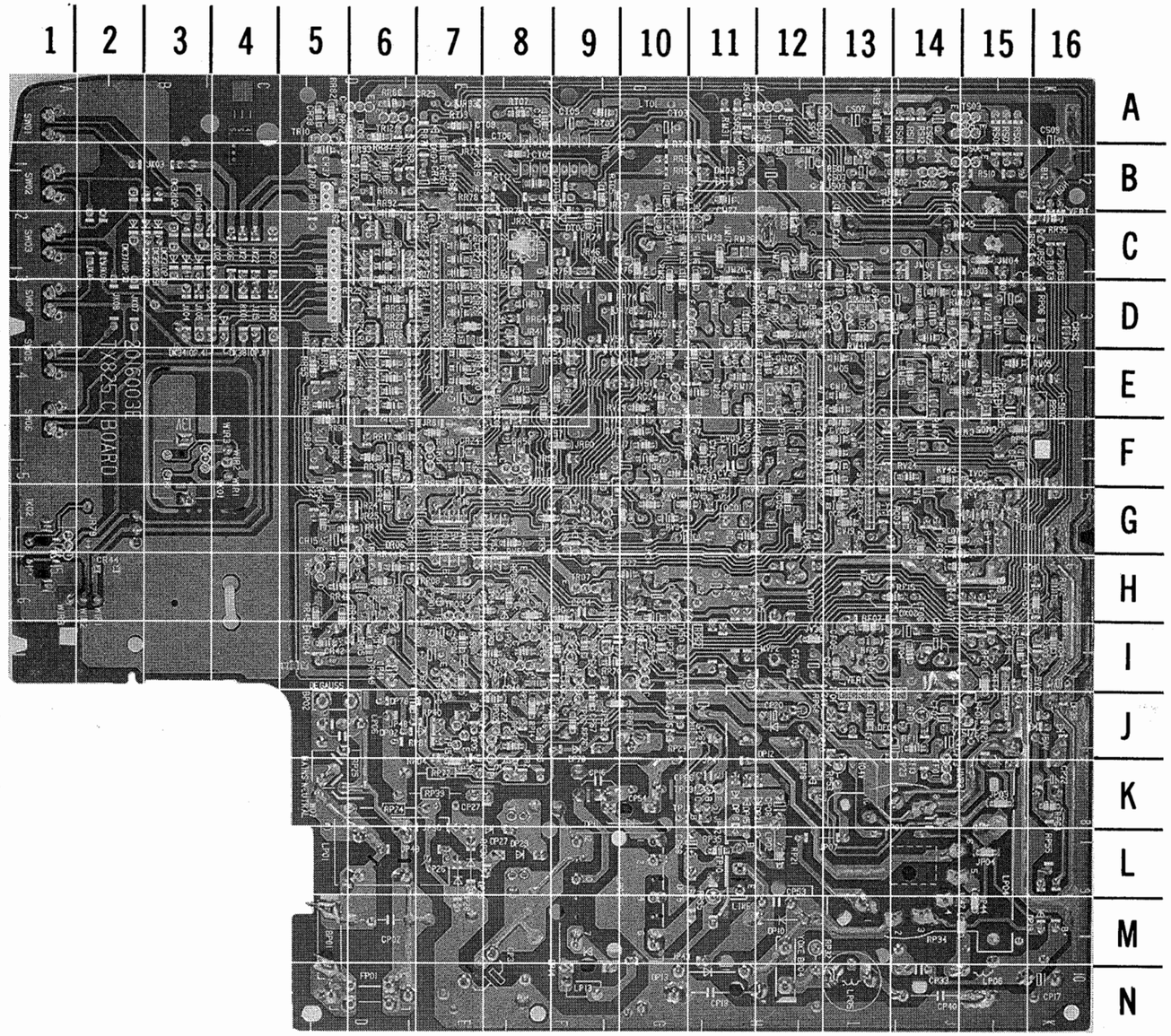


A HOWARD W. SAMS GRIDTRACE™ PHOTO

MAIN BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

BF01	F-13	CR16	H-7	DR07	N-7	RP08	G-7	RR84	H-7
BP04	A-12	CR29	N-6	DR08	J-8	RP11	G-13	RR85	M-16
BS01	N-12	CR31	I-5	DT01	M-9	RP18	G-16	RR89	M-5
CC02	G-15	CR32	I-5	DT02	M-9	RP19	F-15	RR92	C-6
CC03	G-15	CR45	G-1	DV52	G-10	RP23	D-10	RS06	N-15
CC04	H-15	CR52	K-16	DX01	F-10	RP24	D-6	RS07	N-15
CC05	H-12	CS01	M-12	DX02	G-14	RP25	D-5	RS08	N-15
CC06	H-12	CS02	M-15	DX03	E-16	RP28	C-8	RS09	N-14
CC07	H-12	CS03	M-13	FP01	A-6	RP32	B-12	RS10	M-15
CC11	I-12	CS05	N-14	IF01	E-13	RP34	B-14	RS11	N-14
CC12	G-12	CS06	N-13	IK02	G-1	RP38	C-8	RS12	N-14
CF13	E-14	CS07	N-13	IL01	J-13	RP39	D-7	RS14	N-13
CF01	F-14	CS09	N-16	IR01	J-7	RP40	E-6	RT02	N-10
CF02	E-14	CT03	M-10	IT01	N-9	RP43	J-16	RV21	E-15
CF05	F-13	CT04	N-10	JM05	L-14	RP53	D-13	RV22	F-11
CF08	F-14	CT06	N-8	JR37	J-8	RP55	C-16	RV25	H-14
CF09	F-12	CT08	N-8	JV17	G-15	RP56	D-16	RV30	J-11
CJ07	I-10	CT09	N-9	LM02	K-13	RP62	F-11	RV52	H-8
CM01	K-15	CV06	J-11	LM03	J-12	RP63	E-16	RV53	H-10
CM03	M-11	CV09	I-11	LM04	J-15	RP67	G-13	RV54	F-11
CM07	K-13	CV12	I-10	LM07	J-11	RP68	E-12	RV55	K-10
CM10	K-15	CV14	I-10	LM08	K-15	RP72	D-7	RX03	F-16
CM13	J-13	CV17	I-12	LP01	C-6	RP81	E-6	SW01	N-1
CM14	J-15	CV18	G-10	LP02	C-12	RP82	E-8	SW02	M-1
CM15	H-14	CV35	H-11	LP03	B-9	RP85	E-8	SW03	L-1
CM21	K-16	CV36	I-11	LP04	C-14	RP87	E-9	SW04	K-1
CM22	M-12	CV51	F-13	LP05	A-13	RP95	C-11	SW05	J-1
CM23	K-11	CX02	F-16	LP06	A-15	RR01	J-6	SW06	I-1
CM24	E-15	DC01	J-10	LP11	C-11	RR02	I-5	TC01	J-10
CM34	H-6	DF04	E-13	LP12	F-8	RR04	J-6	TF01	D-14
CP01	F-7	DK31	L-3	LP13	A-9	RR07	J-6	TJ04	H-9
CP03	F-8	DK34	K-3	LP99	E-5	RR10	J-6	TM02	K-14
CP04	G-9	DK38	K-4	LR01	L-8	RR11	J-5	TP01	G-8
CP05	E-11	DM03	M-11	LS02	M-16	RR13	J-6	TP02	G-8
CP06	E-5	DP02	E-6	LT01	N-10	RR14	J-5	TP03	G-7
CP08	D-12	DP04	G-8	LV01	K-12	RR16	I-6	TP04	F-8
CP13	F-7	DP05	G-8	LV02	K-11	RR21	K-6	TP05	F-9
CP16	D-9	DP06	E-7	P01	B-5	RR22	J-6	TP06	F-9
CP17	A-16	DP10	B-12	PF01	E-15	RR23	K-6	TP09	D-11
CP18	A-11	DP11	D-10	PM01	K-12	RR24	K-6	TP10	C-11
CP20	E-12	DP12	E-12	PP01	G-7	RR25	K-6	TP11	E-8
CP22	D-16	DP13	A-11	PP02	J-16	RR26	K-6	TP12	F-7
CP23	E-14	DP14	A-9	QC01	H-11	RR27	L-6	TP13	D-11
CP25	E-15	DP15	D-11	QL01	I-14	RR28	L-6	TP14	F-10
CP26	C-7	DP16	D-11	QM01	J-14	RR29	L-6	TP15	E-7
CP27	D-7	DP18	D-12	QM02	J-12	RR35	L-6	TR03	G-6
CP31	A-7	DP19	B-16	QR01	L-8	RR37	L-6	TR04	H-6
CP33	A-14	DP20	E-13	QV01	K-11	RR39	L-6	TR05	G-5
CP35	J-15	DP21	D-11	RC02	H-14	RR43	F-6	TR07	G-9
CP40	A-14	DP26	C-7	RC18	G-11	RR44	H-6	TR08	N-6
CP41	F-6	DP27	C-7	RC22	J-9	RR51	M-10	TR10	N-5
CP47	F-16	DP28	C-7	RC25	G-11	RR52	M-10	TR12	N-6
CP48	E-8	DP29	C-8	RF01	E-14	RR53	J-8	TS02	M-14
CP53	B-12	DP35	E-16	RF04	I-14	RR54	J-8	TS03	N-15
CP54	D-10	DP37	F-8	RF07	G-13	RR59	J-6	TS04	M-15
CP55	E-13	DP46	E-7	RF09	G-15	RR63	M-6	TS05	N-15
CP59	D-13	DP54	E-8	RF12	F-15	RR64	K-8	TV04	K-11
CP63	F-7	DP67	F-10	RF13	E-14	RR65	K-8	TV05	I-15
CP65	F-10	DP75	B-10	RF20	E-16	RR67	M-6	TV50	G-10
CP66	D-11	DP76	E-9	RK01	K-4	RR68	M-6	VV01	H-10
CP68	C-10	DP77	F-9	RM03	K-15	RR70	F-9		
CR08	H-7	DP78	E-6	RM31	N-11	RR73	M-16		
CR09	I-6	DR02	H-7	RP02	E-8	RR75	M-8		
CR11	G-6	DR04	F-5	RP03	G-7	RR76	F-10		
CR12	G-6	DR05	F-5	RP04	D-7	RR78	M-8		
CR15	H-5	DR06	G-6	RP06	K-16	RR83	G-13		

MAIN BOARD - BOTTOM VIEW



A HOWARD W. SAMS GRIDTRACE™ PHOTO

MAIN BOARD - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

CC08	G-13	CR26	D-7	RM04	D-12	RP96	G-5	RR87	A-6
CC13	E-11	CR27	C-7	RM05	E-15	RP97	I-9	RR93	B-6
CF14	F-15	CR28	C-7	RM06	D-15	RP98	F-15	RR95	C-16
CF06	I-13	CR37	B-5	RM09	D-14	RR03	E-6	RS02	B-14
CF07	J-13	CR38	A-5	RM10	E-15	RR05	E-6	RS03	C-12
CJ08	F-10	CR42	I-5	RM11	D-14	RR06	E-6	RS04	B-13
CM02	D-12	CR50	B-7	RM12	D-14	RR08	E-5	RS05	B-12
CM04	D-14	CT05	B-8	RM15	E-14	RR09	E-6	RS13	A-13
CM05	E-13	CT07	A-8	RM16	C-11	RR12	E-6	RT03	A-9
CM11	F-13	CT10	B-6	RM17	E-11	RR17	F-6	RT05	B-9
CM12	F-13	CV07	E-13	RM19	C-10	RR18	F-7	RT07	A-8
CM16	E-12	CV08	F-13	RM20	C-10	RR30	C-6	RT11	C-9
CM17	E-13	CV13	F-11	RM40	F-6	RR31	C-6	RT12	B-8
CM18	E-12	CV15	G-10	RM41	D-13	RR32	C-6	RT13	A-7
CM19	D-14	CV19	G-13	RM45	C-14	RR33	D-6	RV24	F-14
CM20	D-14	RC03	G-14	RP05	H-8	RR34	G-6	RV26	D-11
CM25	E-14	RC04	H-14	RP07	H-7	RR36	F-6	RV28	D-10
CM26	C-12	RC05	G-14	RP09	I-8	RR38	F-5	RV29	E-10
CM27	B-11	RC06	G-14	RP10	H-9	RR42	H-5	RV31	E-11
CM28	E-11	RC07	G-14	RP12	I-8	RR45	H-5	RV32	F-10
CM29	C-10	RC09	G-12	RP13	I-8	RR46	H-5	RV33	G-11
CM30	C-13	RC11	G-11	RP14	J-8	RR47	G-5	RV34	G-10
CP34	E-15	RC15	F-13	RP15	I-9	RR48	H-5	RV36	F-10
CP49	J-6	RC23	E-10	RP16	J-9	RR49	I-6	RV37	F-10
CP67	J-9	RC24	E-10	RP21	L-12	RR55	E-5	RV40	D-12
CR07	C-7	RC26	G-13	RP26	H-8	RR58	H-6	RV41	F-11
CR10	C-7	RF05	I-13	RP27	J-8	RR60	E-5	RV43	F-14
CR17	D-8	RF10	I-13	RP35	L-11	RR61	E-9	RV50	G-8
CR18	D-7	RF11	J-14	RP37	I-7	RR62	B-5	RX02	H-16
CR19	E-7	RF15	H-14	RP59	I-7	RR66	C-7	RX04	I-16
CR20	E-7	RJ12	E-8	RP61	J-8	RR69	F-7	RX05	I-15
CR21	B-10	RJ13	E-8	RP64	K-16	RR72	A-6		
CR22	B-10	RJ15	G-10	RP65	I-8	RR77	H-10		
CR23	E-7	RJ17	F-10	RP70	I-9	RR82	A-5		
CR25	D-7	RJ18	F-9	RP76	J-9	RR86	A-6		